

Application of Digital Research Tools as Correlates of Academic Staff Research Productivity in Public Colleges of Education in Benue State

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ABSTRACT

The study investigated application of digital research tools as correlates of academic staff research productivity in public colleges of education in Benue State. Two research questions guided the study and two hypothesis were tested at 0.05 level of significance. Correlational research design was adopted for the study and the area of the study was Benue State. The population consisted 832 academic staff from three colleges of education in the state with the sample size of 63 academic staff using proportionate stratified and simple random sampling techniques. Three experts from the faculty of Education, two from educational management in the department of educational foundations and one from test and measurement in the department of science and mathematics, Benue State University, validated the instrument. Two sets of questionnaires, Digital Research Tools Questionnaire (DRTQ) and Academic Staff Research Productivity Questionnaire (ASRPQ). A trial test was conducted and the reliability of the instrument were ascertained using Cronbach Alpha which yielded reliability coefficient of 0.79 and 0.86.

Findings revealed a significant strong positive correlation between digital referencing tools, online databases, and academic staff research productivity. The study concluded that effective application of digital research tools enhances research productivity among lecturers.

The study recommends that college management should train academic staff on digital referencing tools through workshops and hands-on mentoring, including guided practice with Mendeley, Zotero, and EndNote. This will improve accuracy, efficiency, and overall research productivity among academic staff.

Keywords: Digital research tools, digital referencing tools, online databases, academic staff, research productivity

INTRODUCTION

Academic staff research productivity is globally regarded as a key driver of innovation, institutional reputation, and national development. However, weak research output often arises from limited use of digital research tools, reflected in poor literature search skills, weak data analysis capacity, low publication rates, and inadequate collaboration networks. In advanced countries such as the United States, the United Kingdom, and Australia, challenges persist in the form of digital fatigue, rising publication costs, and pressure to meet performance metrics. These difficulties are more pronounced in developing contexts like Nigeria, where unreliable internet access, inadequate ICT infrastructure, and limited training constrain research activities. In Benue State, academic staff struggle with outdated research practices, lack of digital databases, and minimal exposure to modern analytical software. Strengthening the adoption of digital

research tools such as online databases, reference managers, and data analysis platform can significantly boost research quality, visibility, and productivity among academic staff.

Academic staff refers to professionally trained individuals employed in tertiary institutions to carry out core academic functions such as teaching, research, curriculum development and community service. They include lecturers, researchers, professors, and graduate assistants who facilitate knowledge creation and dissemination within the university system (Aina, 2019; Okeke & Uzoechina, 2021). Academic staff are central to institutional effectiveness because their competencies, motivation, and professional engagement determine the quality of instructional delivery and research outcomes (Ogunode et al., 2022). Beyond classroom instruction, they mentor students, participate in scholarly conferences, publish research outputs and contribute to institutional governance (Adigun & Amos, 2020). Their performance is shaped by qualifications, workload, availability of resources, and level of institutional support (Ojo & Adebayo, 2023). Since research is one of their primary mandates, it becomes necessary to understand how their research activities translate into measurable productivity.

Academic staff research productivity refers to the measurable output generated through scholarly activities such as journal publications, conference papers, books, patents and grants (Eke, 2021). It reflects the extent to which academic staff contribute new knowledge, innovate, and engage in rigorous inquiry that advances their discipline (Usman & Okorie, 2022). Research productivity is influenced by individual factors such as research skills, motivation and collaboration, as well as institutional factors such as funding, digital access and administrative support (Nwosu & Okeke, 2019; Ibrahim & Sule, 2023). High research productivity enhances institutional ranking, improves knowledge transfer and strengthens academic staff career progression through promotions and recognition (Adeyemi & Owolabi, 2020). In recent years, digital technologies have become critical enablers of research output by simplifying literature search, data analysis and scholarly dissemination. This direct connection demonstrates the relevance of digital research tools.

Digital research tools are technology-based applications and platforms that support the entire research process, from literature search to data analysis, referencing and publication (Chiemeke & Onoja, 2022). Examples include online databases such as Google Scholar, JSTOR, PubMed and ERIC, digital referencing tools like Mendeley, Zotero, RefWorks and EndNote, as well as data analysis software such as SPSS, NVivo and ATLAS.ti (Ogunyinka & Adebawale, 2021). These tools enhance efficiency by enabling quick access to scholarly materials, automation of citations, real-time collaboration and improved accuracy in data management (Mohammed & Idris, 2020). Indices of digital research tools that could enhance academic staff research productivity include accessibility, user-friendliness, search efficiency, storage capacity, citation accuracy and integration across devices. For this study, emphasis is placed on digital referencing tools and online databases, as these directly support literature sourcing and citation management, thereby strengthening academic staff research productivity discussed earlier.

Digital referencing tools refer to computer-based applications that support researchers in organizing, managing, and automatically generating citations and reference lists in scholarly work (Okonkwo & Asha, 2023). Tools such as Mendeley, Zotero, RefWorks and EndNote help academic staff store literature, annotate articles, and insert citations with accuracy and speed (Owolabi & Ajayi, 2021; Adebayo & Nwafor, 2020). Empirical studies show that these tools enhance research efficiency, reduce citation errors, and increase the overall quality of academic writing (Ibrahim & Sule, 2022). In Colleges of Education in Benue State, digital referencing tools determine the effectiveness of academic staff research productivity by simplifying documentation processes, minimizing plagiarism, and helping lecturers meet publication standards required for promotion and scholarly visibility (Eke, 2021). However, limited digital literacy and unstable internet access may constrain their full utilization. Understanding digital referencing tools leads logically to examining online databases, another critical component influencing research productivity.

Online databases are digital platforms that provide structured access to scholarly resources such as journal articles, books, conference proceedings and research reports. Examples include ERIC, JSTOR, Google Scholar, Research Gate and PubMed, which enable academic staff to retrieve up-to-date and peer-reviewed literature relevant to their fields (Chiemeke & Onoja, 2022; Adeyemi & Owolabi, 2020). Empirical evidence

shows that access to online databases enhances research depth, promotes evidence-based inquiry and increases the volume and quality of publications among lecturers (Tella&Oguntayo, 2022). In Colleges of Education in Benue State, the effectiveness of academic staff research productivity depends significantly on the availability, accessibility and stability of these databases, as they determine the range of literature academics can consult when developing manuscripts, proposals or conference papers (Eze & Nwankwo, 2019). As reliance on online databases grows, integrating both digital referencing tools and online databases becomes essential for sustained research productivity.

The analytical position of this study is that the application of digital research tools is related to academic staff research productivity through their potential to facilitate specific research activities. Digital referencing tools may support the organisation and documentation of scholarly sources, while online databases may facilitate the identification and retrieval of relevant and current literature. These functions can make aspects of the research process more efficient and may therefore be associated with research productivity. However, the relationship is not assumed to be exclusively technological or causal. Factors such as digital competency, frequency of tool utilisation, institutional ICT support, accessibility, research funding, workload, motivation, and collaboration may also influence research productivity. The present study therefore examines the relationships between two selected dimensions of digital research tools digital referencing tools and online databases and academic staff research productivity, while recognising that broader explanatory models require additional variables.

Despite the acknowledged benefits of digital tools, a worrying situation is emerging in many Colleges of Education in Benue State, where many lecturers still struggle to access limited hard-copy texts, struggle to cite manually, and rely on outdated research methods that delay publications. If this gap persists, research quality and institutional relevance may continue to decline. This pressing challenge creates an urgent need for the present study.

Statement of the Problem

Academic staff research productivity is globally recognized as a crucial driver of innovation, academic competitiveness, and institutional visibility (Usman & Okorie, 2022). However, in public Colleges of Education in Benue State, educational stakeholders such as the National Commission for Colleges of Education (NCCE), college administrators, Heads of Departments, and academic unions have expressed concern over declining research outputs manifested in poor literature search skills, low publication rates, limited conference participation, and weak collaboration networks. The researcher also observed persistent challenges including heavy reliance on outdated print materials, manual citation practices, poor access to digital databases, and minimal use of digital referencing tools. These issues appear strongly connected to the weak application of digital research tools, leading to slow research processes, high error rates, and reduced visibility of academic publications. Although stakeholders have made efforts through periodic ICT trainings and provision of computer laboratories to enhance research productivity (Agboola & Salihu, 2020), research performance remains low across the institutions. Persistent problems such as unreliable internet connectivity, inadequate technical support, limited subscriptions to academic databases, and poor digital literacy continue to hinder progress. These unresolved challenges create a critical knowledge gap and justify the need to investigate how the application of digital research tools correlates with academic staff research productivity in public Colleges of Education in Benue State.

Purpose of the Study

The purpose of this study was to investigate application of digital research tools as correlates of academic staff research productivity in public colleges of education in Benue State. Specifically, the study sought to;

1. determine the correlation between digital referencing tools and academic staff research productivity in public colleges of education in Benue State.
2. Ascertain the correlation between online data bases and academic staff research productivity in public colleges of education in Benue State.

Research Questions

The following research questions guided the study.

1. What is the correlation between digital referencing tools and academic staff research productivity in public colleges of education in Benue State?
2. What is the correlation between online data bases and academic staff research productivity in public colleges of education in Benue State?

Hypotheses

The following null hypotheses are formulated and tested at 0.05 level of significance.

1. Digital referencing tools have no significant correlation with academic staff research productivity in public colleges of education in Benue State.
2. Online data bases have no significant correlation with academic staff research productivity in public colleges of education in Benue State.

METHODOLOGY

Correlational research design was adopted for the study and the area of the study was Benue State. The population of the study was 832 academic staff from three colleges of education. A sample of 63 academic staff from the three colleges of education was drawn using proportionate stratified and simple random sampling techniques. The instrument used for data collection was two set of questionnaires titled “Digital Research Tools Questionnaire (DRTQ) and Academic Staff Research Productivity Questionnaire (ASRPQ).

The DRTQ operationalised digital research tools through two dimensions: digital referencing tools and online databases. Digital referencing tools were assessed in terms of accessibility, user-friendliness, search efficiency, storage capacity, citation accuracy, and integration across devices. Online databases were assessed based on accessibility, ease of searching, availability of current scholarly materials, search efficiency, and usefulness for locating relevant literature. Academic staff research productivity was operationalised using self-reported indicators comprising journal publications, conference paper presentations, book or book-chapter authorship, and research grant acquisition during the three years preceding data collection. These indicators were selected to represent major forms of scholarly output expected of academic staff in tertiary institutions.

Three experts from Benue State University, Makurdi (two experts in Educational Management in the Department of Educational Foundations, Faculty of Education and one expert in Test and measurement in the Department of Science and Mathematics Education) validated the instrument. A trial test was conducted and the reliability of the instrument were ascertained using Cronbach Alpha which yielded reliability coefficient of 0.79 and 0.86. A total number of 63 copies of the questionnaire were taken to the field and administered to the respondents by the researcher with the help of five research assistance. Data collected were analyzed using Pearson Product Moment Correlation to answer the research questions and also to test the null hypotheses at 0.05 level of significance. The Pearson Product Moment Correlation statistical tool was used because it enabled the researcher to determine the correlation between and among the independent variable (financial management) and dependent variable (effective administration). The use of Pearson Product-Moment Correlation was consistent with the correlational purpose of the study; however, this bivariate approach does not permit estimation of the relative contribution of digital research tools while controlling for other determinants of research productivity.

RESULTS

Research Question 1: What is the correlation between digital referencing tools and academic staff research productivity in public colleges of education in Benue State?

Table 1: Correlation between Digital Referencing Tools and Academic Staff Research Productivity in Public Colleges of Education in Benue State

Variables	N	$\bar{X}$	SD	R	Decision
Digital Referencing Tools	63	2.77	0.64	0.83	Strong Positive Correlation
Academic Staff Research Productivity	63	2.85	0.69		

* Correlation coefficient is strong at 0.5 to 1.0 (or -0.5 to -1.0)

Source: Researcher's Field Survey Results 2025

The result in Table 1 revealed that the correlation coefficient of 0.83 falls within 0.5 to 1.0 which indicate a strong correlation. This indicates a strong positive relationship between digital referencing tools and academic staff research productivity in public colleges of education in Benue State.

Research Question 2: What is the correlation between online data bases and academic staff research productivity in public colleges of education in Benue State?

Table 2: Correlation between Online Data bases and Academic Staff Research Productivity in Public Colleges of Education in Benue State

Variables	N	$\bar{X}$	SD	R	Decision
Online Databases	63	2.90	0.76	0.78	Strong Positive Correlation
Academic Staff Research Productivity	63	2.85	0.69		

* Correlation coefficient is strong at 0.5 to 1.0 (or -0.5 to -1.0)

Source: Researcher's Field Survey Results 2025

The result in Table 2 shows that the correlation coefficient of 0.78 falls within 0.5 to 1.0 which indicate a strong correlation. This indicates a strong positive relationship between online data bases and academic staff research productivity in public colleges of education in Benue State.

Hypothesis 1: Digital referencing tools have no significant correlation with academic staff research productivity in public colleges of education in Benue State.

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Table 3: Correlation between Digital Referencing and Academic Staff Research Productivity in Public Colleges of Education in Benue State

Variables	N	Mean	SD	r	p	Decision
Digital Referencing Tools	63	2.77	0.64	0.83	0.000	Reject H ₀
Academic Staff Research Productivity	63	2.85	0.69			

Note. Correlation coefficient is significant at $p < 0.05$, 2-tailed. Source: Researcher's Field Survey, 2025.

The result in Table 3 shows significant correlation between digital referencing and academic staff research productivity in public colleges of education in Benue State. The result revealed that $r = 0.83$; $p\text{-value} = 0.000 < 0.05$. Since P-value was less than 0.05, the null hypothesis which states that digital referencing tools have no significant correlation with academic staff research productivity in public colleges of education in Benue State was therefore rejected. This indicates that digital referencing tools are significantly associated with academic staff research productivity in public colleges of education in Benue State.

Hypothesis 2: Online data bases have no significant correlation with academic staff research productivity in public colleges of education in Benue State.

Table 4: Correlation between Online Data bases and Academic Staff Research Productivity in Public Colleges of Education in Benue State

Hypothesis 1: Digital referencing tools have no significant correlation with academic staff research productivity in public colleges of education in Benue State.

Table 3: Test of Correlation between Digital Referencing Tools and Academic Staff Research Productivity

Variables	N	Mean	SD	r	P	Decision
Online Databases	63	2.90	0.76	0.78	0.000	Reject H_0
Academic Staff Research Productivity	63	2.85	0.69			

Note. Correlation coefficient is significant at $p < 0.05$, 2-tailed. Source: Researcher's Field Survey, 2025.

The result in Table 4 revealed that $r = 0.78$; $p\text{-value} = 0.000 < 0.05$. Since P-value was less than 0.05, the null hypothesis which states that online data bases have no significant correlation with academic staff research productivity in public colleges of education in Benue State was rejected. This indicates that digital referencing tools are significantly associated with academic staff research productivity in public colleges of education in Benue State.

DISCUSSION OF FINDINGS

The first findings of the study revealed that digital referencing tools have a significant and strong positive correlation with academic staff research productivity in public colleges of education in Benue State. This finding indicates that when lecturers efficiently use digital referencing tools such as Mendeley, Zotero, EndNote, and Google Scholar Citations, their ability to produce quality research outputs; journal articles, conference papers, technical reports, and book chapters substantially increases. This outcome aligns with the empirical findings of Ogunyinka and Adebawale (2021) who established that digital reference managers significantly enhance the accuracy, organization, and timeliness of academic writing among Nigerian scholars. Similarly, Mohammed and Idris (2020) reported that lecturers who adopt digital citation tools demonstrate higher research productivity due to reduced time spent on manual referencing and improved adherence to publication standards. The consistency between the present and past findings is justified by the fact that digital referencing tools universally simplify scholarly writing processes, reduce citation errors, and encourage compliance with international publishing norms. Hence, both the reviewed studies and the present study relate in demonstrating that digital tools create an enabling research environment that supports academic staff in producing high-quality scholarly works with greater efficiency.

The second finding revealed that online databases have a significant strong positive correlation with academic staff research productivity in public colleges of education in Benue State. This demonstrates that access to online academic databases such as JSTOR, Research Gate, Science Direct, ERIC, and Google Scholar enhances lecturers' ability to source current literature, develop robust conceptual frameworks, and engage with global research trends ultimately improving the quantity and quality of their scholarly output.

This agrees with Eze and Nwankwo (2019) who reported that access to online scholarly databases significantly increases lecturers' publication frequency and research relevance in Nigerian tertiary institutions. Likewise, Tella and Oguntayo (2022) found that online databases promote research visibility, improve literature search efficiency, and support evidence-based academic writing among college lecturers. The alignment between current and previous findings is justified by the fact that online databases provide up-to-date, peer-reviewed information that strengthens academic argumentation and expands lecturers' knowledge base, making research more rigorous and globally competitive. Thus, the reviewed empirical studies relate to the present study by confirming that access to rich, credible, and timely digital resources is essential for improving academic staff research productivity, especially in rapidly evolving educational environments such as colleges of education in Nigeria.

CONCLUSION

This study established that application of digital research tools as correlates of academic staff research productivity in public colleges of education in Benue State. This implies that digital referencing tools and online data bases have significant strong positive correlation with academic staff research productivity in public colleges of education in Benue State.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made:

1. College management should train academic staff on effective use of digital referencing tools through regular workshops and hands-on mentoring. This should include guided practice with Mendeley, Zotero, and EndNote. Improved competence in these tools will enhance accuracy, efficiency, and overall research productivity among lecturers.
2. The college management should provide lecturers with stable access to reputable online databases by subscribing to key platforms and training staff on effective search strategies. This approach will broaden access to current literature, strengthen scholarly writing, and significantly improve research productivity.

REFERENCES

1. Adebayo, F., & Nwafor, C. (2020). Adoption of digital referencing tools for academic writing among lecturers in Nigerian tertiary institutions. *Nigerian Journal of Educational Technology*, 5(2), 112–124.
2. Adeyemi, K., & Owolabi, T. (2020). Research output and institutional ranking: Implications for higher education development in Nigeria. *African Journal of Higher Education Studies*, 8(1), 44–58.
3. Adeyemi, K., & Owolabi, T. (2020). Access to online databases and academic writing among lecturers in Nigerian colleges of education. *Journal of Applied Information Science*, 4(1), 55–67.
4. Aina, J. K. (2019). Understanding academic staff roles in Nigerian tertiary institutions. *International Journal of Education and Research*, 7(6), 101–112.
5. Adigun, O., & Amos, O. (2020). Academic staff engagement and institutional effectiveness in higher education. *Journal of Educational Leadership in Africa*, 3(2), 88–102.
6. Agboola, B., & Salihu, H. (2020). ICT interventions for enhancing research productivity in Nigerian colleges of education. *Journal of Educational Innovation and ICT*, 2(1), 23–35.
7. Chiemeké, S. C., & Onoja, A. P. (2022). Digital research tools and research capacity among academics in Nigerian universities. *Journal of Digital Scholarship*, 10(1), 13–27.
8. Eke, C. (2021). Factors influencing research productivity among lecturers in colleges of education in Nigeria. *Nigerian Journal of Educational Management*, 8(2), 77–93.
9. Eze, J., & Nwankwo, C. (2019). Access to online databases and lecturers' research productivity in Nigeria. *International Journal of Library and Information Science*, 11(3), 21–29.
10. Ibrahim, D., & Sule, M. (2022). Influence of digital citation tools on research efficiency in higher institutions. *Journal of Educational ICT Research*, 7(1), 55–68.

11. Ibrahim, D., & Sule, M. (2023). Determinants of academic staff productivity in Nigerian tertiary institutions. *International Journal of Higher Education Studies*, 9(2), 90–104.
12. Mohammed, A., & Idris, Y. (2020). Utilization of digital referencing software and research output of lecturers in Nigeria. *Journal of Information and Knowledge Management*, 15(4), 33–47.
13. Nwosu, B., & Okeke, F. (2019). Institutional determinants of research productivity in Nigerian higher education. *African Research Review*, 13(4), 142–158.
14. Ogunode, N., Ajayi, O., & Lawal, S. (2022). Contributions of academic staff to institutional effectiveness in Nigerian universities. *Journal of Educational Policy and Management*, 6(1), 65–78.
15. Ogunyinka, P., & Adebawale, O. (2021). Adoption of digital referencing software by lecturers in Nigerian universities. *African Journal of Library and Information Science*, 9(2), 101–120.
16. Ojo, A., & Adebayo, S. (2023). Workload, institutional support, and research productivity in colleges of education. *Journal of Educational Research and Development*, 14(1), 55–70.
17. Okeke, P., & Uzoechina, G. (2021). Academic staff roles and institutional development in Nigeria. *Journal of Contemporary Education Studies*, 5(3), 18–29.
18. Okonkwo, E., & Asha, T. (2023). Digital referencing skills and scholarly writing quality among lecturers. *Nigerian Journal of Academic Writing*, 2(1), 60–75.
19. Owolabi, A., & Ajayi, F. (2021). Reference management tools as predictors of academic writing quality in tertiary institutions. *International Journal of Educational Technology*, 8(2), 77–89.
20. Tella, A., & Oguntayo, S. (2022). Availability and use of online databases for academic research in colleges of education. *Journal of Digital Literacy and Education*, 11(1), 44–58.